

IE 460 Comments on Homework #4

There is a single question with a lot of details. The answers can be obtained from already available information in class and the textbook, and it does not require additional modeling. Note that when everything is stated as in the given problem, things look simple.

There might be several assumptions in the problem stated given to you. I will make some speculations on the actual environment – an analyst has to make some assumptions to come up with the “clean” problem environment described in the text of the problem. Here are the speculations:

1) There are more products in the actual system. The question only asks about Scion and its variants. Hence, the analyst probably ended up selecting these products to show what is meant by centralization and how to proceed if there is a benefit in taking any steps beyond the analysis carried out. Of course, for a system-wide implementation, more work is needed to generalize over all products (or to decide to go ahead with some only).

2) Again, to simplify the analysis, the sizes of the dealers are assumed to be the same (of course, if they are not, it is easy to extend the results). Moreover, the lead times may differ, but they are assumed to be the same (Do you know what to do with the centralized model if they were different? The answer is negative according to what you have learned in this course, but several academic articles respond to that case – meaning that this case will require further information search). Additionally, a continuous review policy may not be a good fit for all the dealers. Nevertheless, this path was considered reasonable as it will make the analyses feasible in a reasonably short time and show if there is a benefit in taking this direction for further research. Note that this type of approach is what you need to have in your IE477 project (my explanation may fit most of them) so that you understand what you will be doing further if this direction is selected, as well as a good starting point to persuade the problem-owner (industrial adviser or the company) in the direction you are taking.

3) Some of the estimates may not need to be very precise (holding cost and fixed cost are two good examples). You can perform sensitivity analyses for those estimates to see if your approach is still advantageous under those settings. This approach will save you a lot of time and effort compared to asking for reasonable estimates of those values and waiting for them until you carry out the analyses.

4) You can add more speculative features to the system, but I believe you got the idea.

I will not repeat that you need to carry out all computations using the efficiency of the computer for a repetitive operation (either Excel or Python or similar).

The answers can be summarized as follows:

a) Popular variant only: SS computations for demand over a 4-period time with CSL determining the safety factor.

b) Popular variant only: Same as part a), but this time for the centralized demand. Note that this is for all dealers at the same time.

c) Popular variant only: Same as part b), but only for larger dealers.

d) Popular variant only: Summarize your findings.

e) Repeat parts a) to d) for the other variant.

f) Give your recommendation on what to do for the system configuration. In the homework, you are expected to use numeric results found to come up with your recommendation. Consider adding other standard considerations that are overlooked in the solution or the problem statement.

On the other hand, if you were solving only a part of the more significant problem (as indicated at the beginning of these comments), different considerations would be critical to taking further steps for your project. Sensitivities and other additional analyses should be a part of your recommendations.

Homework 4 statistics:

Average: TBA Standard Deviation: TBA

Grade	3	2	1	0
# of students				

Comments regarding your performance and grading:

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